



BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

FILED

01-18-08
04:59 PM

Order Instituting Rulemaking to
Implement the Commission's
Procurement Incentive Framework and
to Examine the Integration of
Greenhouse Gas Emissions Standards
into Procurement Policies.

R.06-04-009
(Filed April 13, 2006)

**REPLY COMMENTS OF THE DIVISION OF RATEPAYER ADVOCATES
ON THE ADMINISTRATIVE LAW JUDGES' RULING
ON MODELING RELATED ISSUES**

DIANA L. LEE

Attorney for the Division of
Ratepayer Advocates
California Public Utilities Commission
505 Van Ness Avenue
San Francisco, CA 94102
Phone: (415) 703-4342
Fax: (415) 703-4432
Email: dil@cpuc.ca.gov

PAUL S. PHILLIPS

Regulatory Analyst for the Division of
Ratepayer Advocates
California Public Utilities Commission
505 Van Ness Avenue
San Francisco, CA 94102
Phone: (415) 703-2039
Email: psp@cpuc.ca.gov

CHRISTINE S. TAM

Regulatory Analyst for the Division of
Ratepayer Advocates
California Public Utilities Commission
505 Van Ness Avenue
San Francisco, CA 94102
Phone: (415) 355-5556
Email: tam@cpuc.ca.gov

BETH MOORE

Regulatory Analyst for the Division of
Ratepayer Advocates
California Public Utilities Commission
505 Van Ness Avenue
San Francisco, CA 94102
Phone: (415) 703-1784
Email: blm@cpuc.ca.gov

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

Order Instituting Rulemaking to
Implement the Commission's
Procurement Incentive Framework and
to Examine the Integration of
Greenhouse Gas Emissions Standards
into Procurement Policies.

R.06-04-009
(Filed April 13, 2006)

**REPLY COMMENTS OF THE DIVISION OF RATEPAYER ADVOCATES
ON THE ADMINISTRATIVE LAW JUDGES' RULING
ON MODELING RELATED ISSUES**

I. INTRODUCTION

Pursuant to the November 9, 2007 "Administrative Law Judges' Ruling Requesting Comments on Modeling Related Issues" (ALJ Ruling),¹ the Division of Ratepayer Advocates (DRA) submits the following reply comments on modeling related issues for greenhouse gas (GHG) reductions in the electricity and natural gas sectors.

Sixteen parties submitted opening comments on the E3 GHG model. The comments covered a wide range of issues, from general concerns on inclusion of specific players and technologies, to more detailed comments on specific data and methods. DRA focuses its reply comments on the following topics: (1) presentation of model results, (2) usability features, (3) the need for focus groups to address more fully some remaining data controversies, (4) inclusion of the most accurate available data for all entities, including publicly-owned utilities, and (4) the refinement of Phase II goals.

¹ Administrative Law Judges' Ruling Requesting Comments on Modeling Related Issues (ALJ Ruling), November 9, 2007.

II. DISCUSSION

A. DRA supports the addition of output metrics to facilitate the interpretation of the model results.

Green Power Institute (GPI) and Pacific Gas and Electric Company (PG&E) recommended enhancements to the E3 model output. Specifically, GPI requested modification of the model to allow users to compare different scenarios at the same time,² while PG&E recommended that the model provide GHG emissions reduction cost curve (in \$/ton of CO₂ reductions) for each measure, rather than for each scenario in aggregate.³ DRA supports both suggestions to facilitate the interpretation of model output by the California Public Utilities Commission (CPUC), the California Energy Commission (CEC) and the Air Resources Board (ARB).

In addition to the changes requested by GPI and PG&E, DRA recommends that E3 add output metrics representing the cost impacts and CO₂ reductions associated with each user case⁴ relative to a business-as-usual (BAU) scenario for both the electricity and the natural gas sectors. DRA agrees with the observation that the “goal of Stage 1 is to inform the CPUC record of the costs of meeting a sector cap set at different levels of CO₂e,”⁵ yet there is currently no easily discernible view of the total CO₂ reductions for each of the electricity and natural gas sectors, and the associated costs at the sector level for each user case. DRA therefore recommends that the Summary Results in the Main Tab of the GHG model include the following metrics: “Total CO₂ reduction in 2020 relative to a business-as-usual scenario,” “Total incremental cost relative to a business-as-usual scenario”, and “\$/tonne of CO₂ reduction.” These metrics would assist the

² GPI opening comments, p. 6.

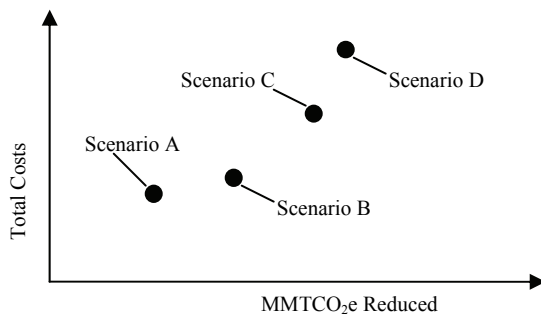
³ PG&E opening comments, p.3.

⁴ Within the E3 GHG model, each user case represents a bundle of emission reduction strategies with resource-specific costs and deployment assumptions.

⁵ E3, “Documentation Overview,” p. 1. Available at <http://www.ethree.com/GHG/1%20Documentation%20Overview%20v4.doc>.

CPUC, CEC and the ARB as they continue to identify cost-effective GHG reduction strategies within sectors and the emission cap level for each sector.

Additionally, DRA suggests that E3 combine the output from multiple-user cases into a single graphical format. At a minimum, the user cases should represent the following scenarios: (A) BAU energy efficiency + BAU renewables; (B) BAU energy efficiency + aggressive renewables; (C) aggressive energy efficiency + BAU renewables; (D) aggressive energy efficiency + aggressive renewables, and (E) aggressive energy efficiency + aggressive renewables with market transformation for solar PV. DRA expects that the result might resemble the following figure:



Alternatively, the plot could replace the y-axis with “\$ per tonne of CO₂ reduction” while keeping the x-axis as “MMTCO₂e reduced.” These types of summary graphs would be very useful in illustrating the different costs and reductions associated with a variety of policy option combinations. Ideally, the modeling exercise should provide an estimate of total costs of emissions reductions under alternative policy scenarios, as well as the marginal cost of additional reductions generated by each policy program or scenario. This would hopefully give policymakers a succinct comparative view of the costs of meeting the goals of AB 32 under the various combinations of policy tools at their disposal.

B. DRA agrees with suggested improvement to make the E3 GHG model easier to use.

Several parties suggested improvements that would make the E3 model more user-friendly. Southern California Edison Company (SCE),⁶ Independent Energy Producers (IEP),⁷ the Sacramento Municipal Utility District (SMUD),⁸ and the Western Power Trading Forum⁹ and the Southern California Public Power Authority¹⁰ requested additional documentation to make the model more transparent and easier to use. DRA supports these requests. Specifically, E3 could consider adding brief text boxes on each page explaining the purpose of the page, the purpose of each table and other pertinent information in order to help step users through the model. Although a GHG calculator reference guide is currently provided in a separate Word document, integration of this documentation directly in the model would enhance the transparency and user-friendliness of the model and should be relatively simple to add.

C. DRA supports the use of working groups to allow stakeholders to discuss, and to the extent possible, reach consensus on input assumptions.

DRA notes that the opening comments showed wide a divergence of opinion regarding the accuracy of many of the cost assumptions. For example, while PG&E estimated that the energy efficiency (EE) program costs to achieve 100% of EE economic potential are too low,¹¹ the National Resources Defense Council (NRDC) and the Union of Concerned Scientists (UCS) commented that the model assumptions for EE administrative and programmatic costs are too high.¹² Similarly, SMUD commented that

⁶ SCE opening comments, p. 6.

⁷ IEP opening comments, p. 2.

⁸ SMUD opening comments, p. 6.

⁹ Western Power Trading Forum opening comments, p. 7.

¹⁰ SCPPA opening comments, p. 12.

¹¹ PG&E opening comments, p. 8.

¹² NRDC/UCS opening comments, p. 8-9.

the solar costs appear too low¹³ while the Solar Alliance expects that PV costs, especially for large-scale photo voltaic (PV) projects, will decline significantly, driven by continued investments in PV by Japan and the European Union.¹⁴

The model currently accommodates a high degree of flexibility to allow users to change input assumptions. While DRA appreciates the level of transparency afforded by the model, it could be a potential source of confusion when parties compare model results based on different input data. To ensure a common starting point for the cases being analyzed, parties should be afforded an interactive opportunity to discuss and, to the extent possible, reach a consensus on model input assumptions.

At the November 14, 2007 workshop, E3 staff suggested convening working groups so that interested stakeholders could confer on model input assumptions. DRA supports this idea and recommends that E3 organize a series of web-based meetings over the next few weeks with the following suggested topics: (1) input assumptions for EE, (2) input assumptions for wind, (3) input assumptions including market transformation effects for solar technologies, (4) input assumptions including market transformation effects for integrated gasification combined cycle (IGCC), and (5) input assumptions for Combine Heat and Power (CHP). Results of the model using revised data input should be posted on the E3 website.

D. The model should be revised to reflect expected GHG reductions from publicly-owned utilities.

SMUD raised several concerns with the accuracy of the E3 model's use of inputs reflecting SMUD's resources and load. According to SMUD, there are errors related to SMUD's carbon emissions, attribution of its renewable portfolio standard contracts and its energy efficiency gains.¹⁵ SMUD contends that similar erroneous inputs were used for

¹³ SMUD opening comments, p. 8.

¹⁴ Solar Alliance opening comments, p.3.

¹⁵ SMUD opening comments. p. 1.

other publicly-owned utilities.¹⁶ If there is more accurate data, as SMUD contends, it should be incorporated as promptly as possible, and other entities should be encouraged to point out appropriate corrections to inputs relating to their resources.¹⁷ The most accurate, complete up-to-date information would make the model a better tool for everyone.

E. The Stage 2 goals of CPUC GHG modeling should be refined to avoid duplicating the ARB modeling work.

In the CPUC GHG Modeling Overview document dated October 31, 2007, E3 explained that Stage 2 of the modeling project will focus on modeling policy options to implement AB32 in the electricity and natural gas sectors including entity-specific allocations and flexibility mechanisms including emissions trading. “The goal of Stage 2 is to identify low-cost and/or easier to implement approaches to meet the AB32 goal in the electricity and natural gas sectors.”¹⁸

DRA expects that under an emissions trading scenario, the electricity and natural gas sectors will be part of a multi-sector emissions trading market. Without a deeper understanding of the other sectors and their emission reduction economics, it might be premature to go through an in-depth exercise to determine the cost impacts of AB32 compliance at the utility level. This might also duplicate the work undertaken by the Air Resource Board as part of its economy-wide modeling exercise. DRA recommends that E3 staff clarify and/or refine their plans for Stage 2 of the modeling project that takes into account the ARB modeling work as well as the point of regulation and/or allowance allocation methodology to be adopted in the upcoming Joint CPUC/CEC decision.

¹⁶ SMUD contends that there are similar errors in some of the inputs used for other publicly owned utilities.

¹⁷ The Los Angeles Department of Water and Power (LADWP) notes in its opening comments that it informed E3 staff about errors relating to assignment of some generator contracts. LADWP Opening Comments, p. 12.

¹⁸ CPUC GHG Modeling Overview document, p.1.

III. CONCLUSION

For the foregoing reasons, the CPUC and CEC should adopt DRA's recommendations on modeling issues as set forth herein.

Respectfully submitted,

/s/ DIANA L. LEE

Diana L. Lee
Attorney for Division of Ratepayer Advocates

California Public Utilities Commission
505 Van Ness Avenue
San Francisco, CA 94102
Phone: (415) 703-4342
Fax: (415) 703-4432

January 18, 2008

CERTIFICATE OF SERVICE

I hereby certify that I have this day served a copy of **“REPLY
COMMENTS OF THE DIVISION OF RATEPAYER ADVOCATES ON
THE ADMINISTRATIVE LAW JUDGES’ RULING ON MODELING
RELATED ISSUES”** in **R.06-04-009** by using the following service:

☒ **E-Mail Service:** sending the entire document as an attachment to an e-mail message to all known parties of record to this proceeding who provided electronic mail addresses.

☐ **U.S. Mail Service:** mailing by first-class mail with postage prepaid to all known parties of record who did not provide electronic mail addresses.

Executed on January 18, 2008 at San Francisco, California.

/s/ REBECCA ROJO

REBECCA ROJO

N O T I C E

Parties should notify the Process Office, Public Utilities Commission, 505 Van Ness Avenue, Room 2000, San Francisco, CA 94102, of any change of address and/or e-mail address to insure that they continue to receive documents. You must indicate the proceeding number on the service list on which your name appears.

* * * * *

E-MAIL ADDRESS LIST

R.06-04-009

cadams@covantaenergy.com
steven.schleimer@barclayscapital.com
steven.huhman@morganstanley.com
rick_noger@praxair.com
keith.mccrea@sablaw.com
ajkatz@mwe.com
ckrupka@mwe.com
kyle_boudreaux@fpl.com
cswoollums@midamerican.com
Cynthia.A.Fonner@constellation.com
kevin.boudreaux@calpine.com
trdill@westernhubs.com
ej_wright@oxy.com
pseby@mckennalong.com
todil@mckennalong.com
steve.koerner@el Paso.com
jenine.schenk@apses.com
jbw@slwplc.com
kelly.barr@srpnet.com
rtraylor@srpnet.com
smichel@westernresources.org
roger.montgomery@swgas.com
Lorraine.Paskett@ladwp.com
ron.deaton@ladwp.com
snewsom@semprautilities.com
dhuard@manatt.com
curtis.kebler@gs.com
dehling@kln.com
gregory.koiser@constellation.com
npedersen@hanmor.com
mmazur@3phasesRenewables.com
vitaly.lee@aes.com
tiffany.rau@bp.com
klatt@energyattorney.com
rhelgeson@seppa.org
douglass@energyattorney.com
pssed@adelphia.net
bwallerstein@aqmd.gov
akbar.jazayeri@sce.com
annette.gilliam@sce.com
cathy.karlstad@sce.com
Laura.Genao@sce.com
rkmoore@gswater.com
dwood8@cox.net
atrial@sempra.com
apak@sempraglobal.com
dhecht@sempratrading.com

daking@sempra.com
svongdeuane@semprasolutions.com
troberts@sempra.com
liddell@energyattorney.com
marcie.milner@shell.com
rwinthrop@pilotpowergroup.com
tdarton@pilotpowergroup.com
lschavrien@semprautilities.com
GloriaB@anzaelectric.org
llund@commerceenergy.com
thunt@cecmail.org
jeanne.sole@sfgov.org
john.hughes@sce.com
llorenz@semprautilities.com
marcel@turn.org
nsuetake@turn.org
dil@cpuc.ca.gov
fjs@cpuc.ca.gov
achang@nrde.org
rsa@a-klaw.com
ek@a-klaw.com
kgrenfell@nrde.org
mpa@a-klaw.com
sls@a-klaw.com
bill.chen@constellation.com
epoole@adplaw.com
agrimaldi@mckennalong.com
bcragg@goodinmacbride.com
jsqueri@gmssr.com
jarmstrong@goodinmacbride.com
kbowen@winston.com
lcottle@winston.com
mday@goodinmacbride.com
sbeatty@cwclaw.com
vprabhakaran@goodinmacbride.com
jkarp@winston.com
jeffgray@dw.com
cjw5@pge.com
ssmyers@att.net
lars@resource-solutions.org
alho@pge.com
bk7@pge.com
aweller@sel.com
jchamberlin@strategicenergy.com
beth@beth411.com
kerry.hattevik@mirant.com
kowalewska@calpine.com

wbooth@booth-law.com
hoerner@redefiningprogress.org
janill.richards@doj.ca.gov
cchen@ucsusa.org
gmorris@emf.net
tomb@crossborderenergy.com
kjinovation@earthlink.net
bmcc@mccarthy.com
sberlin@mccarthy.com
Mike@alpinenaturalgas.com
joyw@mid.org
bdicapo@caiso.com
UHelman@caiso.com
jjensen@kirkwood.com
mary.lynn@constellation.com
lrdevanna-rf@cleanenergysystems.com
abb@eslawfirm.com
mclaughlin@braunlegal.com
glw@eslawfirm.com
jluckhardt@downeybrand.com
jdh@eslawfirm.com
vwelch@environmentaldefense.org
www@eslawfirm.com
westgas@aol.com
scohn@smud.org
atrowbridge@daycartermurphy.com
dansvec@hdo.net
notice@psrec.coop
deb@a-klaw.com
cynthia.schultz@pacificcorp.com
kyle.l.davis@pacificcorp.com
ryan.flynn@pacificcorp.com
carter@ieta.org
jason.dubchak@niskags.com
bjones@mjbbradley.com
kcolburn@symbioticstrategies.com
rapcowart@aol.com
Kathryn.Wig@nrgenergy.com
sasteriadis@apx.com
george.hopley@barcap.com
ez@pointcarbon.com
burtraw@rff.org
vb@pointcarbon.com
andrew.bradford@constellation.com
gbarch@knowledgeinenergy.com
ralph.dennis@constellation.com
smindel@knowledgeinenergy.com

brabe@umich.edu
 bpotts@foley.com
 james.keating@bp.com
 jimross@r-c-s-inc.com
 tcarlson@reliant.com
 ghinners@reliant.com
 zaiontj@bp.com
 julie.martin@bp.com
 fiji.george@elpaso.com
 echiang@elementmarkets.com
 fstern@summitblue.com
 nenbar@energy-insights.com
 nlenssen@energy-insights.com
 bbaker@summitblue.com
 william.tomlinson@elpaso.com
 kjsimonsen@ems-ca.com
 Sandra.ely@state.nm.us
 bmcquown@reliant.com
 dbrooks@nevpc.com
 anita.hart@swgas.com
 randy.sable@swgas.com
 bill.schrand@swgas.com
 jj.prucnal@swgas.com
 sandra.carolina@swgas.com
 ckmitchell1@sbcglobal.net
 chilen@sppc.com
 emello@sppc.com
 tdillard@sierrapacific.com
 dsoyars@sppc.com
 jgreco@caithnessenergy.com
 leilani.johnson@ladwp.com
 randy.howard@ladwp.com
 Robert.Rozanski@ladwp.com
 robert.pettinato@ladwp.com
 HYao@SempraUtilities.com
 rprince@semprautilities.com
 rkeen@manatt.com
 nwhang@manatt.com
 pjazayeri@stroock.com
 derek@climateretry.org
 david@nemtzw.com
 harveyederpspc.org@hotmail.com
 sendo@ci.pasadena.ca.us
 slins@ci.glendale.ca.us
 THAMILTON5@CHARTER.NET
 bjeider@ci.burbank.ca.us
 rmorillo@ci.burbank.ca.us
 aimee.barnes@ecosecurities.com
 case.admin@sce.com
 Jairam.gopal@sce.com

tim.hemig@nrgenergy.com
 bjl@bry.com
 aldyn.hoekstra@paceglobal.com
 ygross@sempraglobal.com
 jlaun@apogee.net
 kmkiener@fox.net
 scottanders@sandiego.edu
 jkloberdanz@semprautilities.com
 andrew.mcallister@energycenter.org
 jack.burke@energycenter.org
 jennifer.porter@energycenter.org
 sephra.ninow@energycenter.org
 dnichaus@semprautilities.com
 jleslie@luce.com
 ofoote@hkcf-law.com
 ekgrubaug@iid.com
 pepper@cleanpowermarkets.com
 gsmith@adamsbroadwell.com
 mdjoseph@adamsbroadwell.com
 Diane_Fellman@fpl.com
 hayley@turn.org
 mflorio@turn.org
 Dan.adler@calcef.org
 mhyams@sfwater.org
 tburke@sfwater.org
 norman.furuta@navy.mil
 amber@ethree.com
 annabelle.malins@fco.gov.uk
 dwang@nrdc.org
 filings@a-klaw.com
 nes@a-klaw.com
 obystrom@cera.com
 sdhilton@stoel.com
 scarter@nrdc.org
 abonds@thelen.com
 cbaskette@enernoc.com
 colin.petheram@att.com
 jwmctarnaghan@duanemorris.com
 kfox@wsgr.com
 kkhoja@thelenreid.com
 pvalen@thelen.com
 ray.welch@navigantconsulting.com
 spauker@wsgr.com
 jwmctarnaghan@duanemorris.com
 rreinhard@mofo.com
 cem@newsdata.com
 arno@recurrentenergy.com
 hgolub@nixonpeabody.com
 jscancarelli@flk.com
 jwiedman@goodinmacbride.com

mmattes@nossaman.com
 bwetstone@hotmail.com
 jen@cnt.org
 lisa_weinzimer@platts.com
 steven@moss.net
 sellis@fypower.org
 BRBc@pge.com
 ELL5@pge.com
 gx12@pge.com
 jxa2@pge.com
 JDF1@PGE.COM
 RHHJ@pge.com
 sscb@pge.com
 sv6@pge.com
 S1L7@pge.com
 vjw3@pge.com
 karla.dailey@cityofpaloalto.org
 farrokh.albueyeh@oati.net
 dtibbs@aes4u.com
 jhahn@covantaenergy.com
 andy.vanhorn@vhcenergy.com
 Joe.paul@dynegy.com
 info@calseia.org
 gblue@enxco.com
 sbeserra@sbcglobal.net
 monica.schwebs@bingham.com
 phanschen@mofo.com
 josephhenri@hotmail.com
 pthompson@summitblue.com
 dietrichlaw2@earthlink.net
 Betty.Seto@kema.com
 JerryL@abag.ca.gov
 jody_london_consulting@earthlink.net
 steve@schiller.com
 mrw@mrwassoc.com
 rschmidt@bartlells.com
 adamb@greenlining.org
 stevek@kromer.com
 clyde.murley@comcast.net
 brenda.lemay@horizonwind.com
 carla.peterman@gmail.com
 elvine@lbl.gov
 rhwiser@lbl.gov
 C_Marnay@lbl.gov
 philm@scdenenergy.com
 rita@ritanortonconsulting.com
 cpechman@powereconomics.com
 emahlon@ecoact.org
 richards@mid.org
 rogerv@mid.org

tomk@mid.org
fwmonier@tid.org
brbarkovich@earthlink.net
johnredding@earthlink.net
clark.bernier@rlw.com
rmccann@umich.edu
cmkehrein@ems-ca.com
grosenblum@caiso.com
mgillette@enernoc.com
rsmutny-jones@caiso.com
saeed.farrokhpay@ferc.gov
e-recipient@caiso.com
david@branchcomb.com
kenneth.swain@navigantconsulting.com
kdusel@navigantconsulting.com
gpickering@navigantconsulting.com
lpark@navigantconsulting.com
davidreynolds@ncpa.com
scott.tomashefsky@ncpa.com
ewolfe@resero.com
Audra.Hartmann@Dynergy.com
Bob.lucas@calobby.com
curt.barry@iwpnews.com
danskopec@gmail.com
dseperas@calpine.com
dave@ppallc.com
dkk@eslawfirm.com
wynne@braunlegal.com
kgough@calpine.com
kellie.smith@sen.ca.gov
kdw@woodruff-expert-services.com
mwaugh@arb.ca.gov
pbarthol@energy.state.ca.us
pstoner@lgc.org
rachel@ceert.org
bernardo@braunlegal.com
steven@lipmanconsulting.com
steven@iepa.com
wtasat@arb.ca.gov
lmh@eslawfirm.com
etiedemann@kmtg.com
ltenhope@energy.state.ca.us
bushinskyj@pewclimate.org
obartho@smud.org
bbebe@smud.org
bpurewal@water.ca.gov
dmacmull@water.ca.gov
kmills@cfbf.com
karen@klindh.com
chadley@reupower.com

sas@a-klaw.com
egw@a-klaw.com
akelly@climatetrust.org
alan.comnes@nrgenergy.com
kyle.silon@ecosecurities.com
californiadockets@pacificcorp.com
Philip.H.Carver@state.or.us
samuel.r.sadler@state.or.us
lisa.c.schwartz@state.or.us
cbreidenich@yahoo.com
dws@r-c-s-inc.com
jesus.arredondo@nrgenergy.com
charlie.blair@delta-ee.com
Tom.Elgie@powerex.com
clarence.binninger@doj.ca.gov
david.zonana@doj.ca.gov
ayk@cpuc.ca.gov
agc@cpuc.ca.gov
aeg@cpuc.ca.gov
blm@cpuc.ca.gov
bbc@cpuc.ca.gov
cfl@cpuc.ca.gov
cft@cpuc.ca.gov
tam@cpuc.ca.gov
dsh@cpuc.ca.gov
edm@cpuc.ca.gov
eks@cpuc.ca.gov
cpe@cpuc.ca.gov
hym@cpuc.ca.gov
jm3@cpuc.ca.gov
jnm@cpuc.ca.gov
jbf@cpuc.ca.gov
jk1@cpuc.ca.gov
jst@cpuc.ca.gov
jtp@cpuc.ca.gov
jol@cpuc.ca.gov
jci@cpuc.ca.gov
jf2@cpuc.ca.gov
krd@cpuc.ca.gov
lrm@cpuc.ca.gov
ltt@cpuc.ca.gov
mjd@cpuc.ca.gov
ner@cpuc.ca.gov
pw1@cpuc.ca.gov
psp@cpuc.ca.gov
pzs@cpuc.ca.gov
rmm@cpuc.ca.gov
ram@cpuc.ca.gov
smk@cpuc.ca.gov
sgm@cpuc.ca.gov

svn@cpuc.ca.gov
scr@cpuc.ca.gov
tcx@cpuc.ca.gov
ken.alex@doj.ca.gov
ken.alex@doj.ca.gov
jsanders@caiso.com
jgill@caiso.com
ppettingill@caiso.com
mscheibl@arb.ca.gov
gcollord@arb.ca.gov
jdoll@arb.ca.gov
pburmich@arb.ca.gov
bblevins@energy.state.ca.us
dmetz@energy.state.ca.us
deborah.slom@doj.ca.gov
dks@cpuc.ca.gov
kgriffin@energy.state.ca.us
ldecarlo@energy.state.ca.us
mprior@energy.state.ca.us
mgarcia@arb.ca.gov
pduvair@energy.state.ca.us
wsm@cpuc.ca.gov
ntronaas@energy.state.ca.us
hurlock@water.ca.gov
hchronin@water.ca.gov
rmiller@energy.state.ca.us